Space Weather Forecast

Issued on Friday 18 October 2024 at 01:12 Local

This forecast provides a four-day assessment of space weather events. The probabilities stated below are for reaching or exceeding the given levels. For more information about space weather impacts please see the Met Office Space Weather Scales https://www.metoffice.gov.uk/weather/learn-about/space-weather/uk-scales

---

Space Weather Forecast Headline: Ongoing chance of Moderate class flares. Slight chance of Minor Geomagnetic Storms today (18 Oct).

Analysis of Space Weather Activity over past 24 hours

Solar Activity: Solar activity has been Moderate, with two Moderate class flares in the period, the largest at 17/0505 UTC from a complex region in the western hemisphere.

There are currently seven active regions on the visible disc, none of which are especially large but two regions have complex magnetic structures with beta-gamma-delta configurations. Of these one region, in the southeast, has shown rapid growth through the past 24 hours, although still remains relatively small in size. Out of the remaining five regions on the disc two have moderate magnetic complexity with beta-gamma configurations, and the rest are simple.

No Earth-directed CMEs (coronal mass ejections) have been observed in available imagery, although we await further imagery and analysis.

Solar Wind / Geomagnetic Activity: Solar wind speeds were predominantly slightly elevated, generally between 400-450 km/s, although with a period in the middle of the day declining to background levels. The Interplanetary Magnetic Field was weak, as was the important Bz component which varied between being north or south orientated. Geomagnetic activity was Quiet to Unsettled.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) were at background, with no Solar Radiation Storms occurring.

Four-Day Space Weather Forecast Summary

Solar Activity: Low to Moderate activity is expected with further isolated Moderate flares thought likely, given recent activity and the level of magnetic complexity on the disk, with a slight chance of an isolated Strong flare. New or returning regions are expected to rotate onto the visible disc through the period, maintaining the risk of significant flares while two regions rotate off behind the west limb.

Solar Wind / Geomagnetic Activity: No Earth directed CMEs feature in the forecast. Ongoing slightly elevated solar winds are expected to decrease to background levels today (18 Oct). There is then the potential for elevated winds to develop today and persist through days 2 and 3 (19-20

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Oct), due to a potential fast solar wind development. Day 4 (21 Oct) winds are expected to gradually decline to background levels to slightly elevated levels.

Overall generally Quiet to Unsettled conditions are expected, with Active intervals likely and a chance of G1/Minor storms today (18 Oct) due to the potential arrival of a coronal hole high speed stream.

Energetic Particles / Solar Radiation: The count rate of energetic particles (high energy protons) is due to remain at background, with no Solar Radiation Storms expected.

Geomagnetic Storms

Geomagnetic Storm Probability (Exceedance)	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Minor or Moderate	G1 to G2	No	30	10	5	1
Strong	G3	No	1	1	1	1
Severe	G4	No	1	1	1	1
Extreme	G5	No	1	1	1	1

Radio Blackouts - X-Ray Flares

X-Ray Flares Probability	Level	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	R1-R2 (M Class)	Yes	60	60	55	55
Very Active	R3-R5 (X Class)	No	5	5	5	5

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.

Solar Radiation Storms (High Energy Protons)

Radiation Storms Probability (Exceedance)	Level ($cm^{-2}sr^{-1}s^{-1}$)	Past 24 Hours (Yes/No)	Day 1 (00-24 UTC) (%)	Day 2 (00-24 UTC) (%)	Day 3 (00-24 UTC) (%)	Day 4 (00-24 UTC) (%)
Active	**≥ S1**	No	10	10	10	10
Very Active	**≥ S3 ***	No	1	1	1	1
* S3 ≥ 10 MeV ≥ 1000 pfu and/or 50 MeV ≥ 10pfu. (pfu = $cm^{-2}sr^{-1}s^{-1}$)						

Issued by Met Office Space Weather Advisor, Tel: +44 (0) 370 900 0100 Email: enquiries@metoffice.gov.uk

© Crown Copyright 2024. All Rights Reserved.